

We Claim:

- Subcl 1* > 1. A TP2 nucleic acid molecule encoding a  
5 polypeptide selected from the group consisting of:  
(a) the nucleic acid molecule of SEQ ID NO:13;  
(b) the nucleic acid molecule that is  
nucleotides 1920-2820 of SEQ ID NO:13;  
(c) the nucleic acid molecule of SEQ ID NO:19  
10 (d) a nucleic acid molecule encoding the  
polypeptide of SEQ ID NO:14, or a biologically active  
fragment thereof;  
(e) a nucleic acid molecule encoding the  
polypeptide of SEQ ID NO:20, or a biologically active  
15 fragment thereof;  
(f) a nucleic acid molecule that encodes a  
polypeptide that is at least 90 percent identical to the  
polypeptide of SEQ ID NO:14;  
(g) a nucleic acid molecule that encodes a  
20 polypeptide that is at least 90 percent identical to the  
polypeptide of SEQ ID NO:20;  
(h) a nucleic acid molecule that hybridizes  
under stringent conditions to any of (a)-(g) above; and  
(i) a nucleic acid molecule that is the  
25 complement of any of (a)-(g) above.

2. The nucleic acid molecule that is SEQ ID  
NO:13 or SEQ ID NO:19.

30 3. The nucleic acid molecule that is  
nucleotides 1920-2820 of SEQ ID NO:13.

*Subcl 2* > 4. A nucleic acid molecule encoding the  
polypeptide of SEQ ID NO:14 of SEQ ID NO:20.

- 99 - 146

5. A nucleic acid molecule selected from the group consisting of: nucleotides 1-1689 of SEQ ID NO:13, nucleotides 1-1920 of SEQ ID NO:13, nucleotides 1920-2820 of SEQ ID NO:13, nucleotides 2089-2820 of SEQ ID NO:13, and nucleotides 2089-2859 of SEQ ID NO:13.

6. A nucleic acid molecule encoding amino acids 640-940 of the polypeptide of SEQ ID NO:14.

10 7. A vector comprising the nucleic acid molecule of claim 1.

15 8. A vector comprising the nucleic acid molecule of claim 2.

9. A vector comprising the nucleic acid molecule of claim 3.

20 10. A vector comprising the nucleic acid molecule of claim 4.

11. A vector comprising the nucleic acid molecule of claim 5.

25 12. A vector comprising the nucleic acid molecule of claim 6.

13. A host cell comprising the vector of claim 7.

30 14. A host cell comprising the vector of claim 8.

35 15. A host cell comprising the vector of claim 9.

16. A host cell comprising the vector of  
claim 10.

17. A host cell comprising the vector of  
5 claim 11.

18. A host cell comprising the vector of  
claim 12.

10 *Sub C3* > 19. A process for producing a TP2 polypeptide  
comprising the steps of:

- (a) expressing a polypeptide encoded by the  
nucleic acid of claim 1 in a suitable host; and  
(b) isolating the polypeptide.

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20. The process of claim 19 wherein the  
polypeptide is SEQ ID NO:14 or SEQ ID NO:20.

21. The process of claim 19 wherein the  
20 polypeptide is amino acids 640-940 of SEQ ID NO:14.

22. A TP2 polypeptide selected from the group  
consisting of:

- (a) the polypeptide of SEQ ID NO:14;  
25 (b) the polypeptide that is amino acids 640-  
940 of SEQ ID NO:14;  
(c) the polypeptide of SEQ ID NO:20; and  
(d) a polypeptide that is at least 90 percent  
identical to any of the polypeptides of (a)-(c).

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23. A TP2 polypeptide that is the polypeptide  
of SEQ ID NO:14, SEQ ID NO:20, or a biologically active  
fragment thereof.

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24. A TP2 polypeptide selected from the group  
consisting of: amino acids 1-563 of SEQ ID NO:14; amino

acids 1-640 of SEQ ID NO:14; amino acids 640-940 of SEQ ID NO:14; amino acids 696-940 of SEQ ID NO:14; and amino acids 696-953 of SEQ ID NO:14.

5           25. The TP2 polypeptide of claim 22 that does not possess an amino terminal methionine.

10          26. A method of increasing proliferation of a cell, comprising expressing a nucleic acid encoding TP2 or a biologically active fragment thereof, in the cell.

15          27. A method of increasing telomerase activity in a cell, comprising expressing a TP2 gene, or a biologically active fragment thereof, in the cell.

20          28. A method of decreasing telomerase in a cell, comprising expressing a TP2 mutant in a cell, wherein the mutant does not have TP2 biological activity.

25          29. A nucleic acid molecule encoding a mutant TP2 polypeptide, wherein the codon for aspartic acid at amino acid position 868 or 869 is changed to a codon for alanine.

30          30. A nucleic acid molecule encoding a mutant TP2 polypeptide, wherein the codons for aspartic acid at amino acid positions 868 and 869 are changed to codons for alanine.

35          31. A polypeptide encoded by the nucleic acid molecule of claim 29.

35          32. A polypeptide encoded by the nucleic acid molecule of claim 30.

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Add S6